

what is claimed is:

1. A western equine encephalitis ("WEE") virus strain 71V-1658 comprising the nucleotide sequence shown in SEQ ID NO: 1.
2. A process for preparing a recombinant DNA vaccine for inducing protective immune response to WEE virus in a mammal, comprising preparing a nucleic acid suitable for producing antigenic determinant in a mammal *in vivo* by encoding antigenic determinant of WEE virus strain 71V-1658 structural proteins operatively linked to a mammalian expression promoter.
3. A process for preparing a recombinant DNA vaccine according to claim 2, wherein said mammalian expression promoter is a cytomegalovirus promoter.
4. A process for preparing a recombinant DNA vaccine according to claim 2, wherein said structural proteins are selected from the group consisting of capsid, E1 protein, E2 protein, E3 protein and the 26S polyprotein gene segment of WEE virus strain 71V-1658.
5. A process for preparing a recombinant DNA vaccine according to claim 2, wherein said nucleic acid is naked.

6. A process for preparing a recombinant DNA vaccine according to claim 2, wherein said nucleic acid is encapsulated in liposomes.
7. A process for preparing a recombinant DNA vaccine according to claim 2, wherein said nucleic acid is coated onto gold particles.
- ~~8.~~ A prophylactic method for inducing protective immune response to WEE virus in a mammal comprising:
  - (i) preparing a nucleic acid suitable for producing antigenic determinant in a mammal *in vivo* by encoding antigenic determinant of WEE virus strain 71V-1658 structural proteins operatively linked to a mammalian expression promoter; and
  - (ii) delivering said nucleic acid into the mammal.
9. A prophylactic method for inducing protective immune response to WEE virus in a mammal according to Claim 8, wherein said mammalian expression promoter is a cytomegalovirus promoter.
10. A prophylactic method for inducing protective immune response to WEE virus in a mammal according to Claim 8, wherein said delivery is effected via an intramuscular injection.

11. A prophylactic method for inducing protective immune response to WEE virus in a mammal according to Claim 8, wherein said delivery is effected via an aerosol spray.
12. A prophylactic method for inducing protective immune response to WEE virus in a mammal according to Claim 8, wherein said delivery is effected via an accerating gold particles coated with said nuclei acid.
13. A prophylactic method for inducing protective immune response to WEE virus in a mammal according to Claim 8, wherein said delivery of said nucleic acid is via liposomal encapsulation.
14. A prophylactic method according to Claim 8 for inducing a protective immune response to eastern equine encephalitis virus and Venezuelan equine encephalitis virus in a mammal.
- ~~15.~~ A structural gene pcDWXH-7 comprising nucleotide sequence shown in SEQ ID NO: 2.
- ~~16.~~ A recombinant DNA expression vector pVHX-6 comprising upstream nucleotide sequence shown in SEQ ID NO: 3 and having remaining nucleotide sequence identical to that of structural gene pcDWXH-7 of SEQ ID NO: 2 from the point of divergence.

17. A recombinant DNA vaccine for inducing protective immune response to WEE virus, wherein structural proteins of WEE virus SEQ ID NO:2 are operationally linked to a cytomegalovirus (CMV) promoter in a nucleic acid pVHX-6 of SEQ ID NO: 3.